A Guide To

ATARI LOGO Demo Disk

SET UP

Turn on the disk drive and insert the demo disk after the busy light goes out. Next, put an ATARI Logo cartridge in the computer and turn on the computer and television.

The screen will display WELCOME TO ATARI LOGO. The ? (question mark) is the prompt symbol. The cursor (white square) shows where the next character you type will appear.

Don't forget to press RETURN after each line of instructions.

THE BASICS: SQUARES

1) To begin the demo, type ST (Show Turtle) and press RETURN. Tell the turtle to move forward 50 turtle steps and turn right 90 degrees by typing:

```
?FORWARD 50 RIGHT 90.    (Press RETURN)
```

IF WHAT YOU TYPED DIDN'T WORK make sure that there are spaces between words and numbers, that the words are spelled correctly, and that you're using capital letters.

Ask onlookers what is needed to finish making a square. Type FORWARD 50 RIGHT 90 three more times.

The turtle can also move backwards. Type:

```
?BACK 30
```

To turn left, type:

```
?LEFT 90
```

For convenience, you can abbreviate FORWARD (FD), BACK (BK), RIGHT (RT), LEFT (LT). Type:

```
?FD 50 RT 180
?BK 40 LT 90
```

Experiment with these four commands. Try larger numbers and see if the results are what you expect. After you've played with drawing lines and turning the turtle, type:

```
?CS  (to Clear the Screen)
?CT  (to Clear the Text)
```

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2) The REPEAT command can draw a square with only one line of code. Use brackets [ ] not parentheses ( ). Type:

```
?REPEAT 4 [FD 60 RT 90]
```

3) To draw a box, type:

```
?CS
?TO BOX
>REPEAT 4 [FD 45 RT 90]
>END
```

You've just created a procedure named BOX. You can see it by typing:

```
?BOX
```

4) Use BOX to build a more complex program:

```
?TO FLOWER
>REPEAT 12 [BOX RT 30]
>END
```

To see the flower procedure, type:

```
?CS
?FLOWER
```

This procedure draws a box and turns right thirty degrees twelve times.

HELPFUL HINTS

ATARI Logo has three screen formats ... text only, graphics only, or split screen (mostly graphics with text at the bottom of the screen).

To change formats, press the CONTROL key (sometimes labeled CTRL) and
T for Text Screen,
F for Full Screen, or
S for Split Screen.

LOGO DEMO

ERALL ERases ALL the Logo procedures in computer memory, but doesn't affect the procedures on disk.

5) To begin the demo, (using a colon not a semicolon after "D), type:

```
?ERALL
?LOAD "D:LOGODEMO
```

As each procedure is brought into memory from the demo disk, its name will appear on the screen telling it has been defined. Most of the procedures printed on your screen are parts of larger procedures.

VARIABLES AND RECURSION

6) For multipurpose procedures, use a :place holder which allows a variable in place of a number.

```
?CT
?PO "SQUARE     (PO stands for Print Out)
```

In The procedure (SQUARE :SIDE), "SIDE" can be any number for the size of the side. Using a variable means you don't have to write a new procedure to make different sizes of squares. Type:

```
?CS
?SQUARE 50
?SQUARE 100
```

Try other numbers with SQUARE. Move the turtle BACK (BK), RIGHT (RT), LEFT (LT), and FORWARD (FD) and try different placements of varied sized squares.

7) In the next procedure, BURST is "recursive" because it calls itself within the procedure. Type:

```
?CS
?BURST 5
```

Type Q and press RETURN. Print out the program by typing:

```
?CT
?PO "BURST
```

Hold down CONTROL and press T to see all of the procedure. Notice the line near the end of the program: BURST :SIZE + 20.

BURST 5 draws a square with sides 5 turtle steps long. The procedure repositions the turtle, and calls BURST again to draw another square of the requested size plus 20. Hold down CONTROL and press S to return to the split screen.

"Recursion" enables the computer to perform complex tasks without complex programming.

8) Type:

```
?CS
?DIZZY
```

As with BOX, BURST can be used to produce elaborate designs. The DIZZY program runs BURST, repositions the turtle, changes pen color, and uses BURST again.

STARTING OVER

The following procedures utilize Logo's advanced capabilities.

If you can't clear the screen by typing CS, type Q (for Quit) and press RETURN. "Q" is a procedure, written for the demo disk, that clears the screen and returns all the turtles to their original shapes, positions and colors.

If typing Q doesn't work, press SYSTEM RESET or turn off the computer and then turn it on again. (Don't turn the disk drive off.) CAUTION: Both methods erase all your work in memory. You must reload the demo to continue after pressing SYSTEM RESET or turning off the computer.)

If you run out of memory using this demo, type ERALL and press RETURN.

MULTIPLE TURTLES AND COLORS

9) Type:

```
?TURTLE
```

This procedure illustrates two of the dynamics of Atari's dynamic turtles: shape and color. The turtle flashes 13 of Atari's 128 colors. Most Logo versions have only 5 or 16 colors.

Atari's shape editor can handle an unlimited number of shapes in groups of 15. Most Logo implementations limit the number of shapes, and some don't even have a shape editor.

The Turtles

Logo has four turtles numbered 0, 1, 2, and 3. When you first turned on Logo and typed ST, you were "talking" to turtle 0.

10) BRSTFOUR shows all four turtles drawing in three different colors. The background cycles through 26 of the 128 colors. The procedure ends automatically. Type:

```
?CS
?BRSTFOUR
```

TURTLES IN MOTION: SETSPEED

11) This procedure makes four turtles move at different speeds. They draw dotted or solid lines depending on their speed.

Turtle shapes can also be changed, and sound effects added. At the end of the procedure, the two faster turtles change into race cars revving their motors. Type:

```
?CS
?FOURLINE
```

FOURLINE incorporates direction changes, turtle color and background color changes.

Unlike sprites (which other Logos use for continuous motion), commands can be given to the turtles while they are moving. Turtle 0 is white, 1 is golden, 2 is pink, and 3 is blue. Type:

```
?CS
?ALLMOVE
```

Press CONTROL and S for split screen. You can now give the turtles individual or joint commands. SETSP (SET SPeed) goes from -199 to -1 backwards and 0 to 199 forwards. Type:

```
?TELL 0 LT 30 SETSP 199
?TELL 1 RT 50 SETSP -20
?TELL [2 3] SETSP 0
```

CS will clear the screen of turtle tracks and put the turtle you were last talking to back in the center of the screen. Experiment using direction and speed changes with the four turtles. When you want to stop, type:

```
?Q      (Press RETURN)
```

COLLISION DEMONS

12) This program demonstrates Atari's unique collision detection capabilities. Turn up the volume and type:

```
?CS
?BOING
```

Whenever turtle #2 (the pink turtle) collides with a red line, the turtle changes direction and a low sound is played.

Whenever turtle #3 (the blue turtle) collides with a yellow line, the turtle changes direction and a high sound is played. ATARI Logo is the only version of Logo to have collision detection. This feature makes programming video games easier because it's unnecessary to continuously check for collisions.

TO STOP ... press BREAK, type Q and press RETURN.

SOUND

13) To hear the range of sounds ATARI Logo can play, type:

```
?SOUND 14
```

SOUND can be started at any frequency - 14 Hertz (cycles per second) and above - and builds in increments of 14 to above audible. The frequency is printed on the screen. This procedure uses only one voice of the two voices in ATARI Logo.

TO STOP ... press BREAK.

14) Type:

```
?MARYLAMB
```

This plays a simple melody using both voices. Few versions of Logo have sound unless you buy additional equipment.

ANIMATION: THE SHAPE EDITOR

15) The shape editor can be used to create animation. The eyes and mouth are turtles with changed shapes. The eyes open, half shut and closed; the mouth changes from no smile, to half smile, to full smile. The turtle colors were changed so the eyes are blue and the mouth is pink. The face automatically clears off the screen. Type:

```
?FACE
```

16) To see how this procedure is put together, type BLINK. The two eyes appear and go through their open/shut routine. Now type WINK (wait for someone cute to walk by). Type MOUTH, if you're happy, type SMILE. Type MOUTH again if you want a grouch. Finally, type HEADNOSE to complete the face.

Type Q to clear the screen and return the turtles to their original shapes and colors.

17) This procedure has the turtles transformed into a noisy truck, then into busy workmen and finally into joyful Jack and Jill bouncing down the hill from her house. (RECYCLE reorganizes the computer's memory and gives you more working space. This is sometimes called garbage collection.) Type:

```
?ERALL
?RECYCLE
?LOAD "D:JACKJILL          (JACKJILL is one word with no spaces)
?JACKJILL
```

MORE LOGO*

Since these procedures require a lot of space in the computer's memory, type ERALL before starting this part of the demo. Type:

```
?ERALL
?LOAD "D:MENU
?MENU
```

Choose an item from the list on the screen such as SENTENCES (letter A).

```
?A
```

This procedure constructs sentences from words chosen at random from lists of nouns, verbs and adjectives. This shows Logo's capacity to teach more than mathematical concepts and illustrates one element of ATARI Logo's list processing capabilities.

Other programs in the list (menu) include:

Graphics:

Great Pyramids (C) -- Three turtles draw a pyramid.

Triangles #1 (E) -- One turtle draws a star-like pattern, separate sections of the design change colors.

Triangles #2 (G) -- One turtle draws a cornucopia shape, colors spiral through it.

Games:

The game of NIM (B)

The Bouncing Turtle Game (D) -- You'll need paddles to play this game. The directions are on the opening screen.

Animation:

The Birds (F)

Any of these programs can be run without loading the menu by typing:

```
?LOAD "D:A
?A
```

To end the demo, type:

```
?BREAK      (Remove the demo disk.)
```

* Written by Eric Solomon of LCSI. Programs A - G are protected by copyright.
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